

# THE YCARS TRANSMITTER



## Ham Radio News, Events and Information

YCARS Club House - 2051 Squire Rd. Rock Hill, SC 29732 – Mailing Address YCARS PO Box 4141 C.R.S., Rock Hill, SC 29732

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### May 2021 Club Activities

- Thursday May 6 – Radio Room Operating Night 18:00-20:00
- Saturday May 8 – Clubhouse Workday 12:00-15:00
- Thursday May 13 – Business Meeting – Clubhouse/Teams 19:30
- Friday May 14 – Monthly Simplex Net – 21:00
- Saturday May 15 – Mike Doty Run – Fort Mill 06:30 – 13:00
- Saturday May 22 – 09:30 VE Testing and Elmering Clubhouse
- Thursday May 27 – 19:30 Virtual Zoom Presentation Night with Tim Duffy K3LR

### 2021 YCARS Officers

- PRESIDENT – W3SPC  
STEVE CZAIKOWSKI
- VICE PRESIDENT –  
KM4WLS PHILIP  
CHANDLER
- TREASURER – K4DQP  
DARCY PACH
- SECRETARY – KN4KCD  
RON PRYOR
- CUSTODIAN – KD4RNP  
WAYNE REEVES
- TRUSTEE – NJ4Z  
JOHN GENDRON

### YCARS Net Schedule

- 2 Meter Morning Net  
Weekdays Mon-Fri  
11:00 K4Ytz Repeater  
147.030MHz (-) pl 88.5
- 2 Meter Evening Net  
Weekdays Mon-Sun  
20:30 K4Ytz Repeater  
147.030MHz (-) pl 88.5
- ARES 2 Meter Weekly  
Net Mondays 19:30  
K4Ytz Repeater  
147.030MHz (-) pl 88.5

# Welcome to the YCARS TRANSMITTER

Vol.1 No.5 May 2021

Hello Everyone,

Welcome to the latest edition of the York County Amateur Radio Society's Newsletter – The YCARS TRANSMITTER. We have much to cover this month. So, Lets dig right in.

In the May edition, our editor, NJ4Z reflects on growing the ranks of Amateur Radio in our "From NJ4Z's Hamshack" feature. NJ4Z does double duty this month and guides new Hams through the planning of their Hamshack in this month's Getting on the Air feature.

Our resident Octogenarian Joe, W8DKR shares some great information on relating the Best Damn Band in the Land and phasing. You fellow Buckeyes know who I mean.

Darcy Pach, K4DQP disputes the claim "The Bands are Dead" while he shares his POTA Adventures with current Club President, Steve Czaikowski, W3SPC in our YCARS In Action feature. Since, we invoked the name of our Club President, Steve W3SPC offers us a primer on 3D Printing for the Ham in "The Workbench".

We had many e-mails regarding the new FCC RF Exposure rules, so NJ4Z tackled the question from Club Member, Earl Cressey, KK4ITQ in the "Ask an Elmer" article.

Jeff Blythe, KA4WYC shares a rare find with us in his very own – KA4WYC's Wild Yella' Chicken Coup.

Also, this month, in YCARS AWARE, with a very heavy heart, the YCARS family says goodbye and Godspeed to our long-time family member and ARRL SC Section Assistant Manager, WA2EMF, Bob Bacharach. We also welcome eight, yes, I said **EIGHT**, new members to the YCARS Family in April. We also run down all the events, activities and news this very active club has going on in May and June. What a couple of months it is going to be, welcoming members back to the clubhouse for operating nights, a very special guest for May's program Night and some very cool announcements.

We hope you enjoy this month's YCARS TRANSMITTER. We need your support and feedback to continue delivering quality content. Please send feedback, submissions or questions to John, NJ4Z – Email: [NJ4Z@YCARS.org](mailto:NJ4Z@YCARS.org)

All the best and 73.

## May 2021 Contest Calendar

5/1 – 7 Area QSO Party  
13:00 UTC – CW, SSB,  
Dig, RTTY (AZ, ID, MT,  
NM, NV, OR, UT, WA,  
WY)

5/1 – Indiana QSO  
Party 16:00 UTC – CW,  
SSB, Dig, RTTY

5/1 – Delaware QSO  
Party – 17:00 UTC -  
CW, SSB, Dig, RTTY

5/1 – New England  
QSO Party – 20:00 UTC  
- CW, SSB, Dig, RTTY  
(CT, MA, ME, RI, VT)

5/8 – Arkansas QSO  
Party – 14:00 UTC -  
CW, SSB, Dig, RTTY

5/29 – CQWW- WPX  
CW contest – 00:00  
UTC



# From NJ4Z's Hamshack

## Musings from the Editor

It was my privilege this last 6 weeks to be part of a YouTube channel series on growing Amateur Radio. As trustee of YCARS and communications committee chair, I responded to a video presentation regarding "How to Grow Ham Radio" by Quin Schultze, K8QS and Tom Dulisch WA9TDD on their channel "Ham Radio Perspectives". They invited YCARS to participate in the series for our insight and the behaviors we are using to grow our club. Participating in this series, gave me an opportunity to reflect on the state of Amateur Radio and how it is being affected by the current state of our society.

Today in general society has become polarized. Classism, racism, political beliefs, etc. are causing the balkanization of society. Additionally, the growth of social media has only widened the divide and exacerbated the loss of civility when dealing with others. It seems we have become indifferent and even contemptuous to others that are different from ourselves. It is very easy to hide behind a screen and keyboard and not see the results of our indifference or contempt. We are becoming increasingly isolated and self-absorbed. We tear each other down instead of building each other up. We speak over each other, instead of listening. We discount ideas and persons without attempting to understand. In short, it is a sad state of affairs. This atmosphere is not conducive to growth, and as it creeps further into Amateur Radio it will only create more problems. If we want Amateur Radio to grow, we need to contribute to that growth. We need to be the change we want to see.

First, we must be grateful for Amateur Radio and those joining our ranks. When we have a grateful attitude, it changes our mindset, it creates solutions, and it is contagious. To change, one of two things must happen, either change happens around us or we affect the change ourselves. To have the change we want we must be proactive and affect the change. Being grateful for Amateur Radio, we must honor and preserve the Legacy of those who came before us laying the foundation from which we all operate. Being grateful removes us from complaining, blaming, and helps us find solutions to problems. When we are truly grateful, we begin to exude that positive energy and it draws others towards us. It begets success and bonds us together. As grateful Hams we will draw people to the ranks of Amateur Radio, seeing that positive attitude.

We must also be passionate about Amateur Radio. Let's face it, Amateur Radio can be difficult and require work. Success in anything is never easy, it takes work and effort, and it is the passion that drives us. The fruits of passion are excitement, joy and a sense of true purpose. Passion for Amateur Radio will drive us to not only better ourselves but our fellow Hams. Just like gratefulness, passion is contagious. When you see someone with true passion you cannot help but be drawn to that person.

"When we work hard for something we don't care about it is called stress. When we work hard for something we love it is called Passion."

- Simon Sinek

It opens the door for others to see what Amateur Radio has to offer.

We must be welcoming and kind to our fellow Hams and people in general. Every day we are given that opportunity to make a choice. That choice is simply, "You can be bitter, or you can be better," to paraphrase a quote by Josh Shipp. When we interact with other Hams and people, we have the choice to show our gratitude, our passion, our willingness to be better every day, or we can choose to be unappreciative, apathetic, and bitter. When we respond to posts on social media and forums, answer questions for fellow club members or the public about Amateur Radio, we need to think, does our response show our appreciation, passion. Is the response, kind, constructive and useful or is it full of indifference, contempt, and snark. Responses that are not kind, constructive and useful are based in ignorance. Ignorance that those responses will drive people away and those who provide them will lessen their credibility and standing in the Ham community.

*"When we help ourselves, we  
find moments of happiness.  
When we help others, we find  
fulfillment."*

– Simon Sinek

We must be generous with our time and our knowledge. We all have the need to be fulfilled in life, it is what brings great joy to our lives. Mentoring (Elmering), in my opinion, is one of the most rewarding facets of Amateur Radio. Encouraging and helping others advance and succeed in their Amateur Radio goals, not only brings joy to both parties, but it builds our own legacy. We honor those before us, preserving and advancing Amateur Radio for future generations.

We must be empathic towards our fellow Hams. Very few people in this world are without empathy, we often just do not have the courage or inclination to show it. We must realize, we are all at different stations in life and we all are blessed in different ways. Treating our fellow Hams as important, taking an interest in them, opening ourselves up to them and investing in the relationship will only further our shared enjoyment of Amateur Radio.

Finally in doing all these things, we become ambassadors for Amateur Radio, we must show not only new Hams but the world, who and what we are. Gratefulness, passion, welcoming, generosity, and empathy all lead us to a brighter future in Amateur Radio. These actions will bring people to us and keep them engaged. A fact shared with me a couple of weeks ago, by ARRL South Carolina Section Manager, Dr. Marc Tarplee, N4UFP hit home. According to the ARRL fifty percent of Amateurs that pass the technician exam get on the air in the first year. Those that do not get on the air in the first year, never will. We must help that other fifty percent find the gratefulness and passion. Our attitudes and actions can make a difference and we can affect the change we all desire to improve and preserve Amateur Radio.

So, until next month, be grateful, welcoming, generous, empathic, and of course, be passionate about Amateur Radio... 73 - NJ4Z out

John Gendron – NJ4Z

Editor, YCARS Transmitter

# “Getting on the Air”

## Helping New Hams Advance

**You’ve Earned Your Ticket, Now What?!**

### **THE HAMSHACK!!!**

**By: John Gendron, NJ4Z**



*Radio NJ4Z Hamshack Operating Position*

Last month we talked about transceivers and G.A.S. (Gear Acquisition Syndrome) avoidance. This month we get into the basics of station construction. So where to start? We have a club, an Elmer(s) (mentor), the rig(s), and antenna(s), now the fun really begins. We need to talk about feedline, power supplies, entrance points, watt/SWR meters, connectors, grounding, lightning protection, mounting hardware, RF Exposure, and much more. We also must talk about space and ergonomics.

So, let’s start with space. Hamshacks come in all shapes and sizes, from go boxes in a corner of the room to occupying entire outbuildings and

basements and everything in between. You should also perform an RF Exposure assessment of your location before making a final decision on your shack location, see this month’s “Ask and Elmer” feature as this is now required for all Amateur Stations.

Ideally, a hamshack will be on an exterior wall of the 1<sup>st</sup> floor or basement of your home. Unfortunately, not an option for all amateurs, so compromises must be made. You must determine the best place for your shack. It should have enough room for you to be comfortable and to house all of your current and future equipment. Your shack should also be a quiet area where the ambient and RF noise level is low and located so you will not disturb others within your household. Once you have your space selected, evaluate the space for power outlets, lighting, and computer connections (wired or wireless). The area should be well lit and should have sufficient power to run your equipment. Power consumption can be a problem with a shared 15 or 20amp 120v circuit. It is best to make sure you have one or two dedicated circuits in you shack, although not always possible. If you are considering as some point getting a linear amplifier a 220v, 20amp circuit would be warranted. A good internet connection is a must these days, as Ham Radio further integrates with computers.

Let’s talk about grounding and protecting your shack. You should have as short a ground path as possible from your shack to the common grounding point. All equipment in your shack should be grounded to a single point and then a single ground conductor to your outdoor grounding system. A busbar or copper pipe across



the back of your station is ideal for the common grounding point. The ground conductor could be copper (solid or stranded) wire, wire copper strap or tinned copper braid. I prefer copper strap, the wider the better. An 8ft driven ground rod near the shack is best and it should be connected to the electrical ground rod of your residence at the entrance panel or meter. One the best articles I have read concerning grounding for amateur stations is from Flex Radio. Solid advice can be found in this link <https://helpdesk.flexradio.com/hc/en-us/articles/204779159-Grounding-Systems-in-the-Ham-Shack-Paradigms-Facts-and-Fallacies>. You should have a disconnecting point outside your hamshack, as well as, lightning protection. You want to minimize the opportunity for static buildup or nearby strike energy coming into your shack or residence. The disconnect point can be as simple as a location where you can unscrew the feedline from the antenna before it enters your shack. Other methods include a relay that shunts your feedlines to your grounding system. I would suggest that you have 2 points to disconnect, depending on your antenna situation. At my QTH, I have an outdoor rated DX Engineering enclosure where all my antennas' feedlines terminate. This enclosure houses the lightning arrestors. In my opinion, Morgan Manufacturing and Alpha Delta arrestors are probably the best on the market for amateur use. The backplate of the enclosure is connected to an 8ft ground rod (interconnected with my entire ground system). At that enclosure I can disconnect the feedlines manually, if I am going to be away for a few days or longer. The feedlines then continue to another outdoor enclosure on the outside of my residence. In that enclosure, I use a Paradan Radio remote disconnecter, this is my second disconnect point for the system. If you recall in the last edition of the Transmitter newsletter, I shared a project to build the switch box to control the disconnecter.



*Paradan Radio dual disconnect in DXE enclosure*

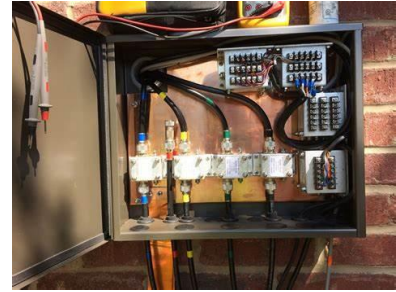
Feedlines are immensely important to your station; purchase the best you can afford. For most of us RG8X is fine when running short runs and 100watts or less on HF. Just remember the higher the frequency and the longer the length of your feedline the greater the losses are in the cables. For VHF/UHF and even 6 meters I would really consider using LMR400 or a larger diameter cable for feedlines. QSL.net has a fantastic calculator to give you losses in your coax; [https://www.qsl.net/co8tw/Coax\\_Calculator.htm](https://www.qsl.net/co8tw/Coax_Calculator.htm). That calculator can be an eyeopener, when you see how much of your power is lost due to SWR and coax type at different frequencies. Also, as you are planning for your feedlines, it is a good idea to leave a slack loop. Maybe another 5 -10 feet of extra cable in your run, just in case you have to make a repair or need to change the location of the connection point slightly. Along with feedlines good connectors are a must, as is proper installation and protection from the elements. The last thing you want to do is buy good coax and destroy it trying to put on inferior connectors, melting the dielectric or having water migrate into the cable. You pay a bit more for good connectors from places like DX engineering but they are so worth it. The DXE NextGen, Times Microwave and Amphenol brands have never failed for me. Use good tape for waterproofing, 3M - Scotch 22, 33, 70 and 88 are primarily what I use.

Getting feedlines into your shack can be difficult and unsightly. The fact you are going to be drilling large holes in a floor or wall to get cables into your shack can unnerving and may cause some discord in the home. I would suggest if you are entering through a wall or floor to use some sort of enclosure to protect that opening, not only from weather but from unwanted critters, vermin, varmints, etc. If you entering through a window or soffit there are plenty of commercial or homebrew entrance panels that can make the installation

look professional. MFJ and KF7P Metal Werks will give you some idea of what is available on the market.

<https://mfjenterprises.com/products/mfj-4603> ;

<https://www.kf7p.com/KF7P/EntrancePanels.html>. Your journey into this hobby has just begun, so plan ahead, you may grow an antenna farm on your property, so make the entrance larger than your current needs. Another quick tip, the drip loop is your friend when connecting into boxes or structures. It is a small bend in the cable to allow water to have a drip off point before entering the enclosure or structure.



*KF7P Entrance Enclosure*

We have a few other pieces of equipment to talk about, again your budget is your budget and just buy the best you can afford. Regarding power supplies, I am a fan of power supply units with a higher output capability versus multiple smaller output units. I currently have 2 power supplies running in the shack one 50 amp and one 60 amp. The reason being, I have 3 uhf/vhf radios, 12v led lighting, a small VHF linear amp, 2 lighted SWR/power meters, as well as two 100-watt HF rigs in the shack. I could in theory run all that equipment on one of those supplies. That said, they run cooler and I have power to spare as I add new equipment down the road. I prefer linear supplies over switching supplies. While we are discussing power supplies and distribution, Anderson Power Pole connections are highly recommended for all your power connections. Plan on using a DC power distribution strip to minimize the connections to the power supply and to provide added fusible protection for your equipment.

Ok we have the RF Exposure assessment done, the space for the shack is selected, we have our plan for feedlines, grounding, lightning protection, and our entrance point. Let's get inside and start to set things up. A large desk, table or work surface is a must, bigger is truly better. I would recommend a 30 to 36" deep surface, most ham gear will be 13 to 15" deep. A deep work surface will provide space in front of the gear for writing implements, keyboard(s), code key(s), refreshments etc. Plan for more equipment in the future, as your station will grow. I can tell you one of the best decisions I made was the use of vertical risers. I used laminated 15" wide shelving material to build vertical shelves that sit on my desktop. It gives me space to stack equipment vertically and maximizes the horizontal space required for my station. Just make sure to use material that is thick enough and enough support to hold the weight. If the budget is tight check out your local Habitat Re-store or similar locations that have repurposed materials, you can find all kinds of tables, shelving, etc. that can be acquired at minimal costs.

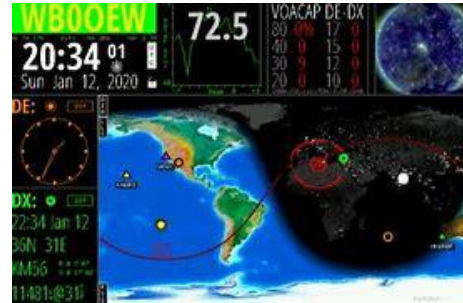
Leave yourself space behind the desk to run interconnections, power cables and audio cables. You can have the desk off the wall, on casters, or sliders as I do in my shack. I can pull my desk away from the wall to get behind it easily with the sliding pads under the legs. Wire and cable management will also become a key as your shack expands. Using some sort of cable duct or rings will make your life considerably easier later down the road. Another huge tip, LABELING!!!!!! Label all of your cables and feedlines, each end and if you feel so inclined in the middle of the run. There are so many inexpensive wirewrap labeling solutions out there, it is almost crazy not to label your cables. Heck even a roll of white electrical tape and a sharpie marker will work. You will thank me the first time you are trying to chase down a coax, audio, USB or power connection behind the desk and you have 30 black wires and cables of various sizes and have no clue which it is.

Ergonomics play a huge role in hamshack design, you are going to be spending quite a bit of time in your shack operating, best to make it as comfortable as possible. Carefully layout your gear, and consider how you will operate, are you right-handed or left-handed. Locate the gear you will use most often in the easiest to access space. One tip I received early on from a friend in the professional broadcast business was to locate things like the power supply, battery back-up, power distribution (conditioning) strips and audio equipment

on a set of shelves (or rack in my case) below the desk, keeping those less often used pieces of equipment off the prime real estate of the desktop.

Keeping with the ergonomics, do not underestimate the importance of a good chair for the operating position. Again, you will be spending quite a bit of time in that seat. A high-back chair that is conformable and can roll and swivel is a must. A good place to start is with office or gaming chairs. I recently purchased a gaming chair that was recommended by another Ham and I am quite pleased with it.

Aside from what has been discussed so far, there are a multitude of other items and equipment to consider adding to your shack. A closet or storage shelves would be a real bonus for the shack. I would also consider a good pair of audio monitors and headphones. A real nicety to have is a 24-hour clock or dual time zone clock, maybe a Geochron or Ham Clock. Having the UTC and local time available at a glance is great and makes for easy logging. Maybe a minifridge for refreshments, just make sure it will not affect your available power and is RF quiet. Maybe add a couch for relaxing or additional chairs for friends. A corkboard for QSL cards, maps and other things to display. Make sure you have wall space to proudly display for the Awards you will earn. A lighted call sign display is really cool too. A quick internet search for images of hamshacks or callsign searches on QRZ will give you hours of inspiration. There are so many eye-candy images out there. It is amazing what can be done in a hamshack. It is your space so have fun with it!!!



*Ham Clock Display*

If you would like to share your hamshack or write an article describing your shack design considerations we would love to publish it in the YCARS Transmitter, please submit to [NJ4Z@YCARS.org](mailto:NJ4Z@YCARS.org)

## Octogenarian Observations with Joe W8DKR

In elementary school you were told to add apples to apples so why can't you add resistance ohms to reactance ohms? Well, the reason is that they are not in the same phase. One way to understand phase is to consider a marching band where everyone puts their left foot down at the beat of the drum. Some marchers will put their left foot down slightly ahead of the drum beat and others slightly behind.\* Yet the speed (frequency) of the marching band is the same. Engineers have developed a diagram called a Phasor diagram to solve phase problems. The Phasor diagram has a horizontal line and a vertical line and they cross in the middle like a cross. Resistance ohms is plotted on the horizontal axis (East). Positive reactance is plotted up (North) and negative reactance is plotted down (South). The phasor diagram is labeled in degrees with resistance ohm is at zero degrees, positive reactance is at + 90 degrees and negative reactance is at -90 degrees. See detailed examples at May, <http://www.onechipsystems.com>

\* The Ohio State University Marching Band has a phase error of 0.00 degrees.





# “The Bands Are Dead” ... I Beg to Differ

Darcy Pach - K4DQP



It started with an e-mail from my friend, Steve (W3SPC). His e-mail stated that I had ‘won’ an all-inclusive three-day camping trip to Keowee-Toxaway State Park and my presence was requested for a couple of days of working remote, good food and a chance to play a little Parks-on-the-Air (POTA) by activating park K-3877. I secured the obligatory ‘kitchen pass’ and headed two and half hours north west of Rock Hill on Sunday afternoon.

Upon arriving I knew this was going to be something special. Not only was the campground nestled among the tall hardwoods of northwestern South Carolina, but Steve’s camper was situated at the utmost peak of the campground atop the mountain about 1100’. Yes, believe it or not, South Carolina has mountains.

Aside from work calls, writing SQL code and calls with coworkers while sitting at the picnic table, during the two days, this POTA activation can be summed up in one word...epic. This wasn’t my first POTA activation. My first netted 78 contacts last summer at Tugaloo State Park in GA.

Using an OCF dipole and 100 watts and some strong encouragement from Steve to ‘go for the kilo’ (award for 1000 contacts from a single park), I managed to bring in incredible pileups from all over the county. I was getting signal reports from S9+10 to S9+40 from Wyoming and parts west. In those three days, I managed to log 47 of 50 states, numerous other POTA activators, and a whopping total of 965 confirmed POTA contacts on mostly 80, 40, and 20 meter bands.

A month later, we both headed out to Oconee State Park, again, using the off-center-fed dipole with 1700’ of elevation, I managed



to contact 49 states, numerous other POTA activators, and a whopping total of 1045 confirmed POTA contacts on mostly 80, 40, 17 and 20 meter bands.

Having numerous DX entities joining the pileups and calling me for a contact was about the most exciting thing I've experienced to date during my two activations.

First, the bands are not 'dead'. Bands conditions change throughout the year, we all know that. Bands also change during the day. Yes, there are better and worse working conditions caused by changes to solar activity, but that just means you may have to try another band, another antenna, or another time to operate.

Second, having something interesting to do, say, or participate in gets people excited. If you are expecting to just call CQ from your home, well, all the best to you, but participating in POTA, a contest, a special event, or even a net will put new and unique contacts in your log. Also, calling from a vacation spot, or different antenna may be the ticket.

Here's a few lessons learned from my POTA activations:

1. Going out and activating a park is fun but take a buddy along. It's much easier to hang an antenna, cook, swap operators, and enjoy the experience with someone else. The encouragement that someone else can provide is enough to make it through the massive pileups that seemed to never end.
2. Use the absolute best antenna you can. Every antenna is a compromise between size, operational capabilities, bands and so forth, but I can assure you that you won't be disappointed if you can get some wire in a tree and "Hang 'Em High". A simple wire dipole outperforms a vertical vehicle or ground mounted antenna any day of the week.
3. General knowledge of propagation (what time of day a band will open) is a huge factor. Calling and expecting for west coast stations when the band is not open will be disappointing at best. Do a little research before you go.
4. Set a few realistic goals for yourself. Whether it's time operating, number of contacts, number of states, bands, or countries contacted, make it a challenge. If you don't succeed, ask yourself why not. Don't just blame band conditions. It's likely there is something you can do better next time.
5. Finally, be an ambassador for yourself and amateur radio. This is important. This includes using your manners, both-on-the-air and off. Whether it's parking, interacting with others in your location, noise, tripping hazards, general attitude, etc., you are ultimately an ambassador first for yourself and then for amateur radio. Pull up any POTA activation and listen to how different these operators are than the typical contesteer or radio lid. You will have such a better experience if you are thanking people for supporting your activation, whether it's the local park ranger (by letting him/her operate for a few minutes) or someone making contact with you. My personal goal is to have the contact on the other end to always know they are appreciated for taking time to contact me.

6. Finally, let people know what you are doing and seek feedback. Let people know when and where you will be. Take some pictures of your activity, update your QRZ page. E-mail the club and ask them to help you. If you are having trouble, call someone and ask advice. Contrary to popular belief, you don't know everything.

If you still think the bands are dead, go out and test it for yourself. You must put down the remote and pick up the mic. It may be as simple as changing the times of day you operate, or just a better antenna strung up in your back yard, a POTA activation, or some other kind of operating you need to convince you. It did it for me. I'll talk to you at my next activation.

'73 de K4DPQ

## "Ask an Elmer"

### Ham Radio Advice and Answers

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*This column will be a forum to ask questions and seek knowledge of amateur radio... we are looking for someone to help answer these questions for members, if you would like to volunteer to help answer or have a question, please email [NJ4Z@ycars.com](mailto:NJ4Z@ycars.com) –*

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Our Question this month comes from Club Member Earl Cressey, KK4ITQ.

What do the new FCC RF Exposure rules mean to me as an Amateur Radio Operator, do I have to run a RF exposure evaluation?

This question is rooted in the FCC announcement of rule changes that go into effect May 3, 2021. The FCC did not change the RF exposure (RFE) limits but, it did require all stations in all services, including amateur radio be evaluated against the current limits. There are exemptions to this rule, but it still requires stations to do some math to make the determination of peak envelope power (PEP) input at the antenna. If your station output is below the limits, an evaluation is not required. Although, an evaluation is not the worst idea regardless of whether you are exempt or not. For existing stations, the evaluation must be complete by May 3, 2023. For new stations and those existing stations that make changes that will likely change the transmitting profile of the station an evaluation must be completed. Adding a new antenna or adding an amplifier can very easily change the transmitting profile of your station. All new stations and retrofitted stations must perform the determination of exemption or RF Evaluation before they are put into service.

Once you make the calculations that determine if you are exempt, you must retain that worksheet with your station records. If you are required to do an evaluation, you must complete this and maintain the evaluation and any limitations of methods that you as the operator will use to ensure compliance, if your station is out of compliance.

The ARRL Laboratory staff is available to help amateurs to make this determination and will also help with the calculations to ensure compliance.

The FCC Report and Order can be found at the following link:

<https://docs.fcc.gov/public/attachments/FCC-19-126A1.pdf>

The following links will provide you with the best information available from the ARRL.

<http://www.arrl.org/rf-exposure>

Evaluation and Exemption worksheets:

[http://www.arrl.org/files/file/Technology/tis/info/pdf/rfex1\\_2.pdf](http://www.arrl.org/files/file/Technology/tis/info/pdf/rfex1_2.pdf)

RF Exposure and You book, free download in PDF:

<http://www.arrl.org/files/file/Technology/RFsafetyCommittee/RF%20Exposure%20and%20You.pdf>

This is not a very difficult task, and it is very good idea to make sure you, your family and neighbors are protected from unnecessary exposure. It is also now required by law. So let's sharpen our pencil folks, we have math to do.

All the best until next month...

John Gendron, NJ4Z

Congratulations to all those who successfully passed examinations during our test session on April 22, 2021

**Welcome to Amateur Radio**

Travis Dixon – KO4PQS

Steve Hackett – KO4PQU

Joseph Harrison – KO4PQV

Brain Ferguson/AG – KO4PQT

**Congratulations on the Upgrade**

KO4NQX/AG– Vicki Carnes

KO4PFY/AG – Mark Brooks

# THE WORKBENCH

## Ham Radio Projects, Tricks and Tips

### 3D Printing – Steve Czaikowski, W3SPC

How often have you found yourself working on a new project for your shack or your house only to find yourself searching endlessly for a project box to house it. Then, after you get an appropriate size box, there's all the measuring, drilling, sanding, etc. to try to give your end project a remotely half-decent appearance.

3D printing can be a solution to quickly deliver a professional looking result for a project. If you are a project-oriented Ham, a 3D printer may be a fantastic addition and a tremendous asset to your workshop. For those who are unfamiliar or quite frankly intimidated by the technology or price of 3D printing, fear no further. As the technology matures, 3D printers have become more affordable (good units available under \$300.00) and less complicated to use. With 3D printing what you can create is only limited by your imagination.

So, let's dig into printers for a moment and talk about what types you can find on the market and how to get the most out of them.

#### Types:

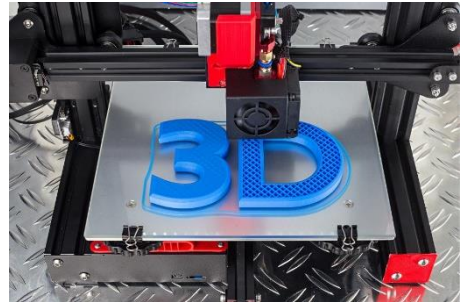
Predominately, there are two different types of 3D printers, FDM and SLA.

FDM (Fused Deposition Modeling) printers are the predominate 3D printers in use today. They operate by "melting" a plastic filament and depositing it on a surface in a controlled quantity. They "draw" an output product in a layering fashion, typically a thickness of .1 to .5mm for each layer deposited.

SLA (Stereolithography) printers are sometimes referred to as *resin printers*. SLA printers can produce most any product a FMD printer can. They operate by "printing" a thin layer of UV reactive resin. Each successive layer is cured by a UV light source, typically an LED. SLA printers produce a high resolution, smooth, finished product. They are the preferred printer for miniature modelers. The smooth and detailed surface allow for detailed painting of the product. SLA printer products tend to be more for display than functional items. The exception to form over function for SLA printed final products is the dental industry, as SLA is the predominate technology used.

Due to the market share held by FDM printing technology, the remainder of this article will focus on FDM printers. If you're looking for your first 3D printer, it's highly recommended to start with an FDM printer due to their cost, reliability, and simplicity.

#### Components:





FDM printers all have several common components.

**Stepper motors** – These devices are small motors which move the physical printer components. Typically, there are four stepper motors found on a 3D printer. One moves the print head side to side (X axis), one moves the print head up and down (Z axis), and one moves the print surface back and forth (Y axis). The fourth stepper motor is typically used to feed print filament (the plastic that gets melted).

**Extruder** – This is the component of the printer that outputs melted filament in a precisely controlled quantity. The extruder itself is made up of a heating element, a thermistor to measure temperature, and a precisely sized nozzle where the melted plastic is output. Sometimes the extruder is referred to as the “hot end”.

**Print bed** – This is the component of a printer where material is deposited, and the model is physically printed. Print bed material is typically aluminum, covered in a material that encourages adhesion of hot filament. A heating element under bed is often employed to keep them warm. Melted filament typically adheres better to a warm surface. As the filament cools, it shrinks. At the completion of the printing phase the heating element is turned off. The product then minutely shrinks, breaking the adhesion to the print bed, allowing for the easy recovery of the finished product.

**Controller** – The controller unit is basically the “brains” of the printer. The controller is responsible monitoring and maintaining the temperature of the extruder and print bed. It controls the precise movement of the stepper motors for all three axes of movement and filament feed to the extruder. Most 3D printer controllers are based on Arduino devices with all the necessary PID sensors and motor drivers integrated into a single board.

### **Common Terms:**

**CNC** – Computer numerical control used to precisely control the automated machining process of materials.

**G-code** – a widely used CNC programming language.

**Slice(s)** – layers of a 3D model that are converted to g-code for the 3D printing process.

### **Printing:**

The actual printing of a 3D product is a simple operation. 3D printers work very much like a CNC machine, but instead of removing material they deposit material to provide a finished product. As with a CNC machine the controller is provided G-code instructions. The G-code instructs the extruder and motors to deposit the layers of material in specific places. Common commands that would be fed to a 3D printer in series are:

Home all axis

Preheat extruder to a particular temperature



Preheat print bed to a particular temperature  
Move all axis to start position of print  
Feed xx quantity of filament  
Move to X,Y coordinates X,Y  
Move to X,Y coordinates X,Y  
...  
...  
Move Z axis to coordinate Z to raise extruder

Rinse and repeat. These instructions, when fed in series to the controller, move the printer's axes fluidly and the filament feeding consistently through the hot end and out the nozzle. The model deposited in successive layers, omitting material in areas where a void is required until the model is fully printed.

The common way of providing G-code to a 3 D Print controller is via a USB connection, streaming code from a traditional or single board computer such as a Raspberry Pi. Alternatively, the 3D print controller may accept and read an SD card through an SD card slot. Loading the G-code files from the card directly to the controller via a menu system.

### **Obtaining or Generating 3D Models:**

At this point we understand what a 3D printer is, what it can do, what components are and how they work. We are ready to begin our own projects. So how do you develop a 3D model for your project? There is a multitude of free software programs to produce 3D models. Some of the software is basic and easy to use, while there are packages which are complex, feature rich and used on a professional enterprise level. There are four commonly used packages by hobbyist:

- a. 3D paint – a free package by Microsoft included with Windows 10.
- b. Tinkercad – A free, online only package by Autodesk Software. [www.tinkercad.com](http://www.tinkercad.com) Windows
- c. SketchUp – A free, online only package by Trimble. [www.sketchup.com](http://www.sketchup.com)
- d. Fusion360 – considered to be the Gold standard of CAD applications, free for hobbyists by Autodesk. [www.autodesk.com/products/fusion-360](http://www.autodesk.com/products/fusion-360)

Sketchup and Fusion360 both have upgraded packages that can be purchased that have more functionality.

Not ready to take on designing your own model, there are hundreds of thousands of people who have created 3D models that are available to be used by others without a fee. Online repositories, like Thingiverse, <http://www.thingiverse.com> have millions of 3D models to search. Chances are you will find something close enough to your needs to be of value on Thingiverse. 3D models for projects such as a stand for a Yaesu FTM-100DR remote head or handles for your Icom IC-7300 can be found there. You can find 3D models for useful tools like a vice to hold LMR-400 cable for soldering purposes. Once you are immersed in the world of 3D printing, the only limit to your creativity is your imagination.

### **Generating G-code:**

We have a model to print our desired project, now what? We need the G-code to instruct the printer to produce our product. In some cases, you can obtain the G-code that has been developed for the 3D model you wish to print. However, using different filament material or different printing hardware can create issues as the G-code obtained may not be correct for your material or hardware. The best

solution is to design or obtain the 3d model of the object your wish to print and produce G-code specific to your material and hardware parameters. The most used free software used to slice 3D models and develop G-code is CURA. In the CURA software, you input the basic parameters for your material and hardware. Parameters can be tuned over time as experience and experimentation provide better data to improve print quality. CURA allows for the loading on one or more 3D models in .STL file format. Using the software, you position the models in a visual format of how they are to be printed on the print bed. The software generates the G-code by slicing the model.

After the G-code is generated, load it into the controller and load your filament into the feeder system of the printer and away we go. It is really that simple.

### Conclusion:

There are several 3D printer owners in YCARS. If you've got a question about where to start or are looking for a recommendation for a good 3D printer, reach out and let us know. We're happy to help!

## THE YCARS BONEYARD

A place to sell, trade or find Ham related Equipment

NJ4Z – John Gendron has two Kenwood TH-F6A handhelds with accessories \$ 530.00 for the pair. Contact [NJ4Z@YCARS.ORG](mailto:NJ4Z@YCARS.ORG) for details.

WN4DVJ – Bill Wells is listing a TYT-MD9600 DMR Mobile unit for \$200.00 and a TYT-MD380 ~~DMRRM~~ Handheld for \$60.00 Contact Bill for details at [Bwells@comporium.net](mailto:Bwells@comporium.net) or 803-417-7117

K4DQP – Darcy Pach is listing a Yaesu FT-950 for sale. This would be a great HF rig for someone starting out, or upgrading to a better radio. (will also do digital modes with Signalink or other type sound card device) \$700.00 Cash Details [K4DQP@YCARS.org](mailto:K4DQP@YCARS.org)

KN4KCD – Ron – FT-70DR/DE HT from Yaesu. It is NIB, never fired up, asking \$140.00. [KC4KCD@YCARS.ORG](mailto:KC4KCD@YCARS.ORG)

W3PAL – Andre – FTDX3000d for sale. I want to offer this for club members first, before I advertise it elsewhere. The radio is in excellent condition. Non-smoking shack. Everything works as it should. The radio has an optional 300 Hz roofing filter (\$200 value) and a Voice Recorder board (\$70 value). Original box, manuals are included. Asking \$1,250 Andre, W3PAL (704) 231-4095 [aeivanov@comporium.net](mailto:aeivanov@comporium.net)

K4Ytz – the club has several items for sale – please see [YCARS Boneyard – Page 1 – K4Ytz – YCARS](#) for details.



# Jeff Blythe – KA4WYC's Wild Yella' Chicken Coup

## A Rare Find.... The FYO Key, And Others

Jeff Blythe – KA4WYC

Information that I gleamed from the InterWeb gave me most of the information for this article, BUT it has a personal twist too. As almost anyone who knows me, I like collecting Telegraph keys, I have about 20 or so keys. But then you say, "Jeff, why are you not on CW"???? That's another story...!!! So back to the FYO Key.

In the early 60's J. A. Hills – W8FYO, had designed a Telegraph Key that was an Iambic Key. Meaning the key would produce Dits and Dahs, by the use of an Electronic Keyer. Touch one side and a string of Dits would key, touch the other side, a string of Dahs. In later designs, this key was also known as a 'Hills' key. Below is an ad from the October 1962 QST. Later versions of this key had a spring as the Tension Spring. But earlier versions, like mine, had a Piano Wire for the Tension Spring.

While I was at HamCation in Orlando last weekend, I was able to talk to Prof. Tom Perera, W1TP, who runs a Telegraph Museum with over 3,000 Telegraph keys. It is an Internet Museum, which I suggest you go to and check it out!! ([www.w1tp.com](http://www.w1tp.com)) Maybe you have a piece of

history!! Meanwhile, back at HamCation, I was able to show my FYO Key to Tom. And I asked what he thought the Key was worth? He said that it was a Fine Version of the FYO Key!! He said it should bring \$300.00!!!! Wow...!! Ok Jeff, just how did you come about to own such a nice piece of History...?? In the early 80's, the W4BFB MARS gang had a Club Auction, where Members who wanted to sell their gear, and some Estate



Tom W1TP

sales for Spouses of Silent Keys. I saw the key and knew I had to bid on it, so I did, \$5.00, (well it was dirty!!). Then a bid for \$10.00!! I bid \$15.00,



### • New Apparatus

#### New Key Mechanism for Electronic Keyers

This key shown in the accompanying photograph is of unusual design, based on usual pivots rather than conventional levers for pivots and frictionless movement. The heart of the mechanism is a metal ring, as shown in the sketch, held against three pivot points by the tension of a coil spring. Although not shown in the sketch, the contact arm and operating arm are also mounted on the ring. Pressure in one direction on the paddle causes the assembly to rock on one pair of pivots, such as A and C, along their axis, YZ, while the ring moves away from the third pivot, B. Pressure in the opposite direction causes the ring to pivot on B and C along axis WX, with the ring moving away from A. In the normal construction, the ring is supported entirely by the pivots, which fit into the metal cup housing.

The movable contacts are at the ends of a arm arm mounted on the ring. The final contacts are on a screw which thread into soft mounting cases. An aluminum screw is used for tightening such that against its contact screw — a much more positive way of locking the contact than the knurled stop that has been traditional for construction in key construction.

The "weight" of the action can be adjusted by changing the tension of the coil spring shown in the sketch. The end of the spring is fastened to a fine steel wire which can be wound up on an adjusting screw to vary the tension. There is also a "ratio" adjustment, by means of which the spring loading can be made lighter on the dash side than on the dot side, and vice versa. The principle is simple — turning the thumb-screw shown in the sketch moves the link on the spring back and forth along the cross rod to vary the point



at which the spring force is applied, thus allowing it to one side or the other of course.

Another useful feature is the height adjustment on the paddle arm. The paddle can be raised up or down by loosening the screw holding the side link, which can be used for operating the device as a simple hand key.

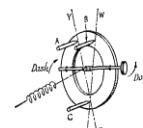
The FYO key is constructed on a heavy cast-iron base with rubber feet. The operating mechanism is finished in enameled bright and satin chrome, and gives an impression of precise attention to detail in construction and finish. The contacts are of "fine" silver. The key is made by J. A. Hills, W8FYO, 8045 Inwood Ave., Dayton 13, Ohio.

— R. L. C.

### • Strays

F1 Nets, a directory of first-frequency, wide-band, FM, nets may be obtained by sending an S.A.S.C. to T. A. McKee, K1ZAD, 1306 Grove Rd. Most of these nets are using modified surplus taxi and police gear and the frequencies 32.825 and 146.94 Mc.

K1AZD parked his car briefly in Skowhegan while vacationing in Maine and returned to it to find the local fire-department at the scene. The crisis was over, however, as W2VHH, also vacationing in Maine, had happened by and, spotting smoke pouring from the car, had disconnected the storage battery (the difficulty lay in a short in K1AZD's middle rig).



October 1962





again, a bid for \$20.00...!! I bid \$25.00, (all I had...!) I heard it was my good friend Andy Hawkins, G4GKK/K4GKK, was my bidding adversary. I asked Andy if he REALLY wanted the key. He said no, he was just bidding against me..!! I told him to quit bidding, I wanted the key!! Everyone laughed and Andy said I could have it. So, I got the key for \$25.00...!!!! Not a bad Investment....!!

This is my key, (on the left) notice the Piano wire used for the Tension Spring, and the FYO Nameplate, with J.A. Hills of Dayton, Ohio. On the right is a later version (1965) with a spring tension (on the right) I found on the InterWeb.

I'll try to show some of my other keys in my collection, like my 1946 British Admiralty key, or my many Vibroplex bugs. Hey while I'm rambling on, how about showing us some of your keys, or your Shack..?? Susan N4SPN needs more content for the Connector!! So, take a pic, and write up a little article for our newsletter.

This is the 1946 British Admiralty key. Notice how heavy the contacts are. Not only was it used for Morse Code over the air, but could be hooked up to use Signal Lights, from ship to ship or ship to shore. I wouldn't want to touch the key's Tunion Bar when connected to LIVE VOLTAGE...!!! OUCH !!! In the



photo on the right, you'll see the date 1946. This key is heavy!! Oh, WAIT, you'll want to know the story behind this key! In the early 90's I worked for Duke Power Communications, Tim Slay - N4IB was the manager. One of the other Techs was Mike Smith – WA4EQM. We always talked Ham Radio with the other hams employed by Duke Power. Well sadly mike suffered a Heart Attack and passed away. His wife, Susan called me up one day to come by and see if Mike had anything I wanted. He had some Vintage Radio Equipment, and meters and test equipment and the usual stuff. Well, I saw the above key and knew I wanted that. Susan said are you sure, what about the radios? Nope, this key reminded me of Mike - robust, been used and still worked!! Yep, writing this, I have a fond tear in my eye thinking of Mike!! RIP SK WAEQM!!

Well, I'm sure I've bored you with my Treasures. So, as I said before, show us your treasures, keys, rigs, Ham Shacks (ie: closets, kitchen tables), WHO HAS A WHOLE HAM CAVE???

73 Jeff KA4WYC



# YCARS News and Updates

Be YCARS Aware

## YCARS remembers long time member and ARRL SC Section Assistant Manager – Bob Bacharach, WA2EMF, SK 1945- 2021



Bob Bacharach, WA2EMF, passed away on 30 March 2021. Originally from Queens, NY, he was first licensed in 1959 as WV2EMF and in 1960 he upgraded to a General Class license and a new call, WA2EMF, that he would hold for the rest of his life. He was a veteran of the US Navy and alumnus of NYU. His career as an IT professional spanned more than 4 decades, including employment at Airborne Instrument Laboratories, Estee Lauder, Brookhaven National Laboratories, and Superior Washer.

Bob had been a member of YCARS since his arrival in Rock Hill in 1991. He served as club president in 2002, and was Hamfest Chair from 2003 to 2008. He served as an Assistant Section Manager in the ARRL Field Organization of the South Carolina Section from 2010 until his death. He was an active amateur who enjoyed DX'ing, contesting, public service communications, and traffic handling. He had a wide circle of friends inside and outside the amateur radio community and the only people who didn't like him were people he had yet to meet. He was also quite a raconteur, with a well-developed sense of humor and the gift of being able to see the lighter side of almost any situation.



Silent Key Ceremonies were held Saturday, April 10, 2021 – during the Hoodlum Net, and during the YCARS 2 Meter Evening Net Monday April 12, 2021.



ARRL SC Section Leadership Team (L-R)  
 WA2EMF, SK – Bob Bacharach – Asst. SC Section Mgr.  
 N4UFP – Dr. Marc Tarplee, (standing) – SC Section Mgr.  
 AE4VJ – Bard Humphries – SC Section Technical Dir.  
 KB4GFJ – Morgan Williams – Asst. SC Section Mgr.

NEW YCARS MEMBERS  
WELCOME TO THE  
FAMILY

New members for April  
2021

KA5CYT – John Gore

KO4PQV – Joseph Harrison

KO4NZA – Bill McMillan

K4CIJ – Bill Ross

KO4ORD – Joy Taylor

KO4PFY – Mark Brooks

K1KBL – Tom Edwards

KO4PQT – Brian Ferguson

## YCARS In Action – Communications Support for the Det. Mike Doty Memorial 5K

The YCARS Community Service has committed to providing communications support for the Detective Mike Doty Memorial 5K. The 5K will take place in Fort Mill on Saturday, May 15, 2021.



For those of you unfamiliar with Detective Doty, Detective Michael “Mike” Doty, who served the York County community for 12 years, was one of four deputies shot searching for a domestic violence suspect in York on January 16, 2018. A day later he passed away. He was an investigator with the York County Multi-Jurisdictional Drug Enforcement Unit and was the Law Enforcement Officer Narcan (LEON) Program coordinator for the sheriff’s office. He was also a member of the YCSO SWAT Entry Team, as well as an associate advisor for the York County Explorer Post 1786.

This event will directly benefit Keystone. Keystone was established in 1969 as a private, not-for-profit organization that serves as the Act 301 (1973) substance abuse authority in York County, South Carolina. Keystone offers nationally accredited and licensed services including education, prevention, and treatment (both outpatient and inpatient) -- to meet the needs of individuals, families, and groups in York County and surrounding areas experiencing alcohol and/or drug-related problems.

The club is need of your help, to fulfill our community service mission and give back to our community. Events like these prove our value as auxiliary communications, but also paints Amateur Radio and our club in a positive light. Our community service program, YCARS in Action, will help in securing donations to our club from corporate and private entities. Please use the following link to sign-up as a volunteer for the event. <https://www.signupgenius.com/go/9040D44A5A82EA2F49-comms>

For any additional information please contact David, KX4UV – Email [KX4UV@YCARS.org](mailto:KX4UV@YCARS.org)



## The Hoodlums Friendship Net 22<sup>nd</sup> Anniversary Breakfast – May 8, 2021

The Hoodlums Friendship Net 22<sup>nd</sup> Anniversary Breakfast will be held Saturday May 8<sup>th</sup>, 2021, 09:00 at the Rock Hill Diner, 2254 Cherry Rd., Rock Hill SC.

## YCARS to Resume 1<sup>st</sup> Thursday, Club Operating Nights – May 6, 2021



On Thursday May 6<sup>th</sup> YCARS will resume our open house operating nights. The radio room will be open from 18:00 until 20:00 (local). This will be opportunity for new members to experience YCARS radio room, make contact and seek advice from mentors within the club. We do ask that members wear masks while in the clubhouse for the protection of others, especially when working within close proximity. We also request no more than six people be in the radio room at any given time. The meeting space should be used for socializing, mentoring conversations, and projects. The radio room should

be used for hands on mentoring and making contacts.

## YCARS Club Participation Day – Saturday May 8, 2021 - 12:00 – 15:00

Calling all YCARS Members – We need your help!!! There are several projects that need to be done at the clubhouse and we are looking for members willing to help out. Put on the work boots and gloves and come give us a hand! There will be opportunities to work and learn. We need help assembling the new Yagi Antennas that will be installed on the two towers in short order and complete the bonding and grounding project. We also need to clear the area on the hill between the clubhouse and road. Members are encouraged to bring string trimmers and brush cutters. The clubhouse does need some additional cleaning and organization work. The club has also scheduled additional participation days, the second Saturdays in July, September and November.

## YCARS Welcomes Tim Duffy, K3LR for a very special presentation on May 27<sup>th</sup>, 2021, 19:30(ET).



Tim Duffy, K3LR, CEO of DX Engineering and world-renowned Radio-Sport contester, will be YCARS guest presenter for our May 2021 program meeting. Tim will be presenting on Contesting and Contest U. Tim will be joining us via a Zoom conference, so the meeting will be 100% virtual. Keep an eye out for the e-mail invite going out to the club.

## YCARS is going REMOTE!!! Remote operation capable that is.



A very generous donation by a YCARS Member, specifically to allow the club to offer remote operation capability to its members was received in April. The club has purchased a Flex Radio 6400 transceiver and is in the process of setting up and testing the remote capabilities. Remote operations will be available to members shortly after the grounding and antenna install projects are complete. More details to follow soon...

## YCARS Elmering Workshop – Saturday May 22, 2021 and Saturday June 19, 2021 – 11:00 – 12:30

YCARS will host an in-person Elmering Session on May 22<sup>nd</sup> and again on June 19<sup>th</sup> immediately following the VE testing session. The May 22<sup>nd</sup> session will be concentrating on getting started in Amateur Radio. The June 19<sup>th</sup> mentoring session will concentrate on familiarizing new hams and newly upgraded hams with the equipment the club will use for ARRL Field Day. The K4Y TZ Radio-Sport team will be there giving hands on training with the Icom IC-7300 and Yaesu FT-991A transceivers.



## SAVE THE DATES - ARRL Field Day 2021, June 27 & 28, 2021

YCARS and the K4Y TZ Radio-Sport Team will be participating in the annual ARRL Summer Field Day Event. YCARS will be operating in the field from Westminster Park in Rock Hill. Plans will be finalized by the Field Day committee and presented to the Club at the June business meeting... More to follow next month!

## YCARS SWAG Opportunity upcoming in May

YCARS will be taking orders for club t-shirts starting May 3, 2021. The order period will be open until May 15, 2021. Please be on the lookout for an e-mail regarding the order process and costs of the shirts. If you are interested in embroidered club shirts, hats, jackets, bags and other items please contact Southpaw Screen Printing and Embroidery, 803-324-5225, <http://www.southpawlogos.com>. The YCARS logo is on file.

## Up for some Adventure? Save the date Saturday, July 31, 2021 YCARS Club Picnic and POTA activation.



YCARS will hold the 2021 club picnic at Andrew Jackson State Park, July 31<sup>st</sup> in conjunction with a club foxhunt and Parks on the Air activation. So, come out, bring the family and join the club for some fun and the adventure that is Amateur Radio. More details to follow...

## YCARS Clubhouse Surveillance Cameras and Card Access Control System are Operational

Though very generous donations of materials and labor from PMTronics and Performance Link Technologies, Inc., the YCARS clubhouse has new IP based surveillance cameras and a card access system. This will allow the club to offer more access to the clubhouse without the expense and hassle of physical keys. If you would like to gain access to the clubhouse and meet the requirements to receive an access credential, please contact the WHI committee. We will be distributing credentials soon and the locks for the radio room and entry doors will be changed.

## Local Hamfest Updates:

The Rowan (NC) Amateur Radio Society has cancelled the Firecracker Hamfest for 2021.

The Shelby Amateur Radio Club will update the status of the Shelby Hamfest on or before May 31, 2021

The Carolina Amateur Radio Emergency Services Club is holding the Gaffney (SC) Hamfest on Saturday, Oct. 23, 2021 at the South Side Baptist Church, 204 W. O'Neal St. Gaffney, SC. 08:00-15:00



## FCC Rule Updates:

The FCC has changed several requirements for those applying for licenses, vanity calls, etc. As of May 20, 2021 the FCC is requiring new applicants to use an FRN number on an application. Social security numbers will not be accepted. As of June 29, 2021 the FCC will require an email on all applications and correspondence.





YCARS is proud to recognize the achievements and awards earned by club members this month.

If you have earned a Ham Radio Award you wish to share with the YCARS family please let us know.

Darcy Pach, K4DQP – Parks on the Air – KILO Award – Oconee State Park –

Earned for 1000+ contacts from a single POTA entity

Darcy Pach, K4DQP – Parks on the Air – Night Shift Award – Oconee State Park

Earned for 50 contacts on the Late Shift 00:00 UTC

Darcy Pach, K4DQP – Parks on the Air – Park to Park Award – Oconee State Park

Earned for 25 Park to Park Contacts

Steve Czaikowski, W3SPC – Parks on the Air – KILO Award – Oconee State Park

Earned for 1000+ contacts from a single POTA entity

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The York County Amateur Radio Society

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